



# FEEDING TWO **BIRDS** WITH ONE **WORM**

**Using close reading strategies to intertwine literacy and numeracy**

By **Beryl Irene Bailey**



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*t*he act of close reading of text functions much like the digestive system process. In a close read, the learner takes in and digests massive amounts of qualitative and quantitative complex information. The text is broken down into vocabulary, text structures and features, signal words, content knowledge, themes, perspectives and figurative language, and symbols. After the information is digested, knowledge is gained, delivered, and stored.

Literary nonfiction and informational text are loaded with language structures that provide opportunities for that level of close reading, and the opportunities can enable learners to become metalinguistic and metanumeric, interpreting quantitative literacy that enhances the meaning of what the author has written.

The act of close reading helped me to unearth a great classroom example I like to use to show the connections between literacy and numeracy.



It's found in the children's informational text *Women of the Confederacy* (Compass Point). Author Barbara Somervill highlights the contributions of Sally Louisa Tompkins in the book, which is about how women established hospitals for wounded confederate soldiers. She elucidates Sally's high standards of cleanliness, which saved the lives of many of her patients.

In literacy, the signal word *which* lets the reader know that a cause-and-effect structure has been formed. However, *which* as a numeracy concept connotes a logic structure has been established. Somervill explains how soldiers did not typically recover from surgery in the 1860s. In the style of argumentation, she provides evidence that supports her claim and counterclaim. "They got infections and died, but *fewer* died in Tompkins' care. Robertson House handled more than 1,300 patients and only 73 soldiers died there." Somervill uses a combination of text, numerals, and general words that express quantity, operations, and measurement to justify her claim.

The reader would need to understand the concepts *fewer* and *more than*. Here, we notice the interdependence of literacy and numeracy. The skill of determining the meaning of words in context is important, but the reader would also need to understand that the context deals with ratios. These details require an interpretation in addition to an estimated calculation.

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The structure requires that the reader *divide* the *number* of patients served (1,300) by the *number* of soldiers who died (73). The answer will provide an estimate because of the general word that expresses the quantity of soldiers handled by the hospital: *About 6%* of the patients/soldiers died in Tompkins's care.

The word *about*, which connotes probability, is used because it is not certain just how many patients were in the hospital. Statistically, *about 6%* is an amount low enough to suggest that it was not significant, which supports the claim that Tompkins's and her nurses' high standards of cleanliness likely saved the lives of many patients—about 94%, in fact.

Ultimately, it is only when the reader applies knowledge of numeracy that meaning can be made of what the author is trying to communicate. Oftentimes, while conducting a close read of text, the structure requires that students simultaneously enact their verbal, logical, and numerical reasoning skills to comprehend the author's message.

## Every educator is a teacher of numeracy

What I've described is not the close reading happening in many classrooms, but it could be.

Close reading has been designed to help students gain a deeper understanding of what the author has written. The analysis of text often stops at the metalinguistic level. Within many classrooms, teachers are actively engaged in generating text-dependent questions that support students' understanding not only about what the author has written, but also how and why it was written. This level of close reading has helped to close the achievement gap in literacy. Conversely, although reading, writing, and language scores are improving, math scores are on the decline.

The numeracy-based instructional shifts in mathematics have yet to make their way into every classroom. Many standards found in today's math instruction have their roots in language and require that students have a solid knowledge of how language works. Although math is calculations, numeracy is interpretation, synthesis, and application. These elements compose several of the mathematical practices. Every teacher can learn to scaffold conceptual and contextual knowledge, procedural skill and fluency, including the application of numeracy principles to gain deeper levels of meaning.

Math teachers alone cannot bear this burden, just as reading and English language arts teachers alone cannot bear the burden of teaching literacy. We live in a data-drenched society. Every educator must take responsibility for all students becoming adept in examining and delineating the examples of numeracy that reside within all disciplines. If we do not, like the worm after the rain, students will drown in the text we teach and drift aimlessly through the problems posed by society. ■

## MY CLOSE READING PROCESS

- **Check** for and highlight vocabulary that represents ordinal and cardinal numbers and numerals, symbols, and general words that represent quantity, operations, and measurements.
- **Look** for and highlight key details in the text to help you generate a problem or format a solution to a problem or task.
- **Observe** how the text and/or problem or task is organized. Notice and review key math terms, symbols, labels, units of measure, and so forth, as previously highlighted.
- **Seek/Solve. Seek** out signal words (*twice, percent of, etc.*) that might alert you to a math operation, formula, or algorithm to help you **solve** the problem or task.
- **Evaluate/Explain. Evaluate** how this problem or task relates to real-world situations, and **explain** how you solved the problem or task.